PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference	FOR FURTHER ACTION	See Form PCT/IPEA/416
08897912WO		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/CA2004/000661	30.04.2004	10.06.2003
International Patent Classification (IPC) or national classification and IPC		
A61K7/16, C08B37/00		
Applicant		
CEAPRO INC. et al.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 6 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☒ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
08.04.2005	19.10.2005
Name and mailing address of the international preliminary examining authority:	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Pacreu Largo, M Telephone No. +49 89 2399-7851

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/CA2004/000661

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

   Description, Pages

   1-28 — as originally filed

   Claims, Numbers

   1-30 — received on 11.04.2005 with letter of 08.04.2005

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☒ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☒ the claims, Nos. 1-30 as originally filed
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☒ the claims, Nos. 1,2,4,5,6,9,11,12,14,18,19,21,24,25
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

See Separate Sheet

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/CA2004/000661

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	3,7,8,10,13,15,16,17,20,22,23,26-30
	No:	Claims	
Inventive step (IS)	Yes:	Claims	3,7,8,10,13,15,16,17,20,22,23,26-30
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	3,7,8,10,13,15,16,17,20,22,23,26-30
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item I

Basis of the report

The amendments filed with the letter dated 08.04.05 introduce subject-matter which extends beyond the content of the application as filed, contrary to Article. The amendments concerned are the following:

-independent claim 1: no support can be found for a toothpaste composition comprising the 4 components of new claim 1. The applicant gives as a basis claims 9 and 10 as originally filed and p. 16, l.27. However, claim 9 as originally filed refers to an oral composition comprising one or more solvents, beta (1-3)(1-4) glucan and a polishing agent. Claim 10 as originally filed lists further possible components of the oral composition. New claim 1 represents a novel selection of components.

- the same applies to dependent claims 2, 4, 5 and 6 since they refer to the specific composition of new claim 1.

- dependent claims 9, 11, 12, 14, 18, 19, 21: according to the applicant these claims are based on some of the claims as originally filed. However, the claims they are dependent on, are different to those originally filed. The additional features of new claims 9, 11,12, 14, 18, 19, 21 havenot been disclosed in the original application in connection to the specific toothpaste/mouthrinse compositions of the claims tehy are dependent on.

- claim 24 and 25: according to the applicant, these claims are based on former claims 27 and 28. New claim 24 and 25 represent a novel selection of the components listed in claims 24 and 25 as orginally filed.

Thus, the present report is based on amended claims 3, 7, 8, 10, 13, 15, 16, 17 20, 22, 23, 26-30 as filed with letter of 08.04.05, which appear to comply with Art. 34(2)(b) PCT.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The documents cited in the International Search Report are consecutively numbered D1-D9 in the order of their listing. If not indicated otherwise, reference is made to the passages cited in said ISR.

2. The document D1 discloses oral compositions comprising oat beta glucan, an antibacterial agent, a plant extract, a flavouring agent, a surfactant and an humectant for treating snoring.

   The document D2 discloses dietary supplement oral compositions comprising beta glucan (among others beta (1-3)(1-4) glucan), an antimicrobial agent, a flavouring, an humectant and a polishing agent. The composition might be in the form of a capsule, lozenge, tablet or chewable gum.

   The subject-matter of claims 3, 7, 8, 10, 13, 15, 16, 17 20, 22, 23, 26-30 is therefore novel in the sense of Art. 33(2) PCT.

3. The problem underlying the present application appears to be the provision of an oral composition for whitening teeth or freshening the breath over a prolonged period of time.

   Conventional ingredients of mouthrinses or whitening tooth compositions are antibacterial agents, flavouring agents, humectants, surfactants, sweeteners, bleaching agents... (see D6-D9).

   The present toothpaste, mothrinse or tooth-whitening compositions differ from those in the prior art in that beta (1-3)beta(1-4) glucan is added.

   The stickiness property of beta (1-3)beta(1-4) glucan allows toothpaste, mouthrinse or tooth-whitening compositions to be retained on the teeth or in the oral cavity over

a prolonged period of time and impart long-lasting fresh breath. This has not been previously disclosed or suggested in the prior art.

Thus, the subject-matter of claims 3,7,8,10,13,15,16,17,20,22,23,26-30 appear to involve an inventive step, Art. 33(3) PCT.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A toothpaste comprising:

an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of a flavouring agent;
an effective amount of a surfactant, and
an effective amount of a polishing agent.

2. The toothpaste according to claim 1, further comprising an effective amount of one, or more than one compound selected from the group consisting of a sweetener, an antibacterial agent, a botanical extract, a humectant, a thickener, a fluoride salt, an odour neutralizing agent, an antioxidant, and a bleaching agent.

3. The toothpaste according to claim 2, wherein the oral composition comprises:

an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of an antibacterial agent;
an effective amount of a flavouring agent,
an effective amount of a surfactant, and
an effective amount of a polishing agent.

4. The toothpaste according to claim 1, wherein the toothpaste is for imparting fresh breath to a subject over a prolonged period of time.

5. The toothpaste according to claim 1, wherein the toothpaste is for continuously providing the flavouring agent within the oral cavity of a subject.

6. The toothpaste according to claim 3, wherein the toothpaste is for continuously providing the flavouring agent and the antibacterial agent within the oral cavity of a subject.

7. The toothpaste according to claim 2, wherein the oral composition comprises:

an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of an antibacterial agent;

an effective amount of a flavouring agent;
an effective amount of a surfactant;
an effective amount of a polishing agent, and
an effective amount of a fluoride salt.

8. The toothpaste according to claim 2, wherein the oral composition comprises:
an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of an antibacterial agent;
an effective amount of a flavouring agent;
an effective amount of a surfactant;
an effective amount of a sweetener;
an effective amount of a polishing agent, and
an effective amount of a fluoride salt.

9. The toothpaste according to claim 3, wherein the antibacterial agent is selected from the group consisting of triclosan, cetyl pyridinium chloride, sanguinarine, domiphen bromide, a quaternary ammonium salt, a zinc compound, a fluoride, alexidine, octonideine, EDTA, silver nitrate, thymol, methyl salicylate, eucalyptol, menthol, and a mixture thereof.

10. A mouthrinse for imparting fresh breath to a subject over a prolonged period of time, comprising:
an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of an antibacterial agent;
an effective amount of a flavouring agent;
an effective amount of a surfactant, and
an effective amount of a sweetener.

11. The mouthrinse according to claim 10, further comprising one, or more than one compound selected from the group consisting of an odour neutralizing agent, an antioxidant and a humectant.

12. The mouthrinse according to composition of claim 10, wherein the antibacterial agent is selected from the group consisting of triclosan, cetyl pyridinium

chloride, sanguinarine, domiphen bromide, a quaternary ammonium salt, a zinc compound, a fluoride, alexidine, octonideine, EDTA, silver nitrate, thymol, methyl salicylate, eucalyptol, menthol, and a mixture thereof.

13. A tooth-whitening composition comprising:
an effective amount of a β (1-3) β (1-4) glucan, and
an effective amount of a bleaching agent.

14. The tooth-whitening composition according to claim 13, further comprising an effective amount of one, or more than one compound selected from the group consisting of a flavouring agent, an antibacterial agent, a botanical extract, a surfactant, a humectant, a thickener, a fluoride salt, an odour neutralizing agent, an antioxidant, and a polishing agent.

15. The tooth-whitening composition according to claim 14, comprising:
an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of a flavouring agent, and
an effective amount of a bleaching agent.

16. The tooth-whitening composition according to claim 14, comprising:
an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of a flavouring agent;
an effective amount of an antibacterial agent, and
an effective amount of a bleaching agent.

17. A mouthrinse for imparting fresh breath to a subject over a prolonged period of time, comprising:
an effective amount of a β (1-3) β (1-4) glucan, and
an effective amount of an odour neutralizing agent.

18. The mouthrinse according to claim 17, further comprising an effective amount of one, or more than one compound selected from the group consisting of a flavouring agent, an antibacterial agent, a botanical extract, a surfactant, a humectant, a thickener, a fluoride salt, a bleaching agent, an antioxidant, and a polishing agent.

19. The mouthrinse according to claim 17, wherein said odour neutralizing agent is selected from the group consisting of zinc gluconate, zinc citrate, alpha ionone, and a mixture thereof.

20. A mouthrinse for imparting fresh breath to a subject over a prolonged period of time, comprising:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of an antibacterial agent selected from the group consisting of triclosan, cetyl pyridinium chloride, sanguinarine, domiphen bromide, a quaternary ammonium salt, a zinc compound, a fluoride, alexidine, octonideine, EDTA, silver nitrate, thymol, methyl salicylate, eucalyptol, menthol, and a mixture thereof.

21. The mouthrinse according to claim 20, further comprising an effective amount of one, or more than one compound selected from the group consisting of a flavouring agent, a polishing agent, a surfactant, a botanical extract, a humectant, a thickener, a fluoride salt, a bleaching agent, a gum base, an antioxidant, and an emulsifier.

22. A method for imparting fresh breath to a subject over a prolonged period of time, comprising applying to the teeth, the oral cavity, or both of a subject, a composition comprising:

an effective amount of a β (1-3) β (1-4) glucan, and

an effective amount of one, or more than one of an antibacterial agent, a botanical extract, and a flavoring agent.

23. The method according to claim 22, wherein the composition further comprises an effective amount of one, or more than one compound selected from the group consisting of a surfactant, a sweetener, a polishing agent, a thickener, a fluoride salt, a bleaching agent, a humectant, an odour neutralizing agent, an antioxidant, and a gum base..

24. The method according to claim 23, wherein the composition comprises:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of a flavouring agent;

an effective amount of a surfactant, and
an effective amount of a polishing agent.

25. The method according to claim 23, wherein the composition comprises:
an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of an antibacterial agent;
an effective amount of a flavouring agent;
an effective amount of a surfactant, and
an effective amount of a sweetener.

26. A method of whitening the teeth of a subject, comprising applying to the teeth of the subject an oral composition comprising:
an effective amount of a β (1-3) β (1-4) glucan, and
an effective amount of a bleaching agent.

27. The method according to claim 26, wherein the oral composition further comprises an effective amount of one, or more than one compound selected from the group consisting of a flavouring agent, an antibacterial agent, a botanical extract, a surfactant, a humectant, a thickener, a fluoride salt, an antioxidant, and a polishing agent.

28. A use of an oral composition comprising:
an effective amount of a β (1-3) β (1-4) glucan, and
an effective amount of one, or more than one of an antibacterial agent, a botanical extract, and a flavouring agent,
for imparting fresh breath to a subject over a prolonged period of time.

29. A use of an oral composition comprising:
an effective amount of a β (1-3) β (1-4) glucan, and
an effective amount of a flavouring agent,
for continuously providing the flavouring agent within the oral cavity of a subject.

30. A use of an oral composition comprising:

an effective amount of a β (1-3) β (1-4) glucan, and

an effective amount of an antibacterial agent,

for continuously providing the antibacterial agent within the oral cavity of a subject.

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